

of England. Not only are many of the birds of the northern districts normally strangers to the south, either at one season of the year or at all times, but notable differences in their habits are observable. Species, for instance, that sing during winter in the south are silent at that season further north; while others that are permanent residents in the former area are migratory in the latter. And it is certain that from an ornithological point of view the northern counties are more interesting than the southern—and more especially the south-western counties.

In the treatment of his subject, Mr. Dixon has acted wisely in abandoning a systematic classification in favour of a grouping by means of "station," so that we have chapters on the birds of the upland streams, of the moors, the mountains, the heaths and marshes, the forests and copses, the farm and the garden, the river and pool, the sea and the beach, and the crag and sea-cliff. By this arrangement a much more discursive and "chatty" style of writing is permissible than would otherwise have been the case. The reader is accordingly spared a repetition of the descriptions of the various species of which we

out that it occurs in a work published as far back as 1771, and a later issue of which was actually edited by the learned professor himself!

An especial feature of all the author's works is his own practical experience of birds in their native haunts; and all who have had bird-nesting adventures in their own early days will read with delight the description, on p. 136, of his ascent of a lofty oak to secure a clutch of buzzard's eggs, which were safely carried down. In making friends, during his youthful days, with both poachers and game-keepers, Mr. Dixon seems indeed to have had an almost unique experience, and one whereby his practical acquaintance with the ways of birds was largely augmented. He has many stories to tell of the wanton manner in which he has known keepers fire into the nests of brooding birds and otherwise inflict destruction on what they are pleased to denominate "vermin." In regard to these latter, he urges (p. 151) that our indigenous native game-birds would thrive all the better if hawks, crows, magpies, owls and the like were left unmolested. The pheasant, he thinks, however, might not fare so well; but, he adds in effect, perish the pheasant! This, how-

ever, we venture to suggest, is scarcely a practical way of looking at things. If pheasant-preserving were to be given up, our coverts would not be guarded at all, and many of the other birds would be ten times worse off than they are under the present régime.

Not the least interesting chapter in a very interesting book is the final one on bird migration in the northern counties, where, instead of a learned discussion on the theory of migration, we have an actual account of the manner in which the swarms of autumn and spring migrants reach and leave our coasts. Here the author remarks that the short-eared owl and the woodcock frequently reach the Wash together, making the passage from the Continent during the same night, although the one just skims the water while the other flies high in the air. And many other passages attest the author's close observation of the movements of birds. It is to be wished, however, that he would employ the familiar name hedge-sparrow in place of the pedantic hedge-accentor. The term sparrow, as Prof. Newton remarks, was probably originally applied to all our smaller birds; and it is surely an unwarrantable assumption on the part of ornithologists to traverse popular usage

and attempt its restriction to the members of the restricted genus *Passer*. R. L.

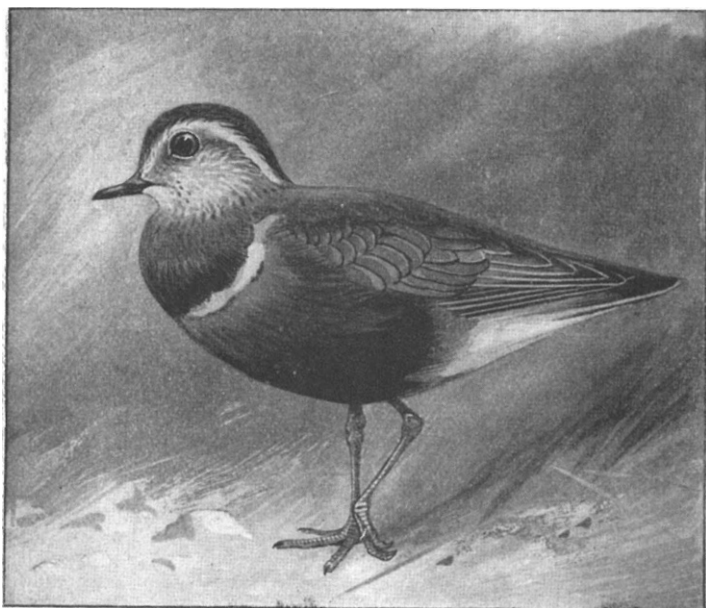


FIG. 2.—The Dotterell. (From Dixon's "Among the Birds in Northern Shires.")

have already more than enough; and the author has also seen fit to abandon the use of technical names, and to content himself with the English titles of the birds mentioned.

Much of the attraction of the book is due to the exquisite portraits of birds in their haunts from the accomplished pencil of Mr. C. Whympster. Where all are good it is difficult to select examples for special commendation, but the black-cock crowing is one that strikes our own fancy, and the two cuts that we are enabled, by the courtesy of the publishers, to reproduce, will serve as good examples of the general style of illustration. If we mistake not, the figure of the raven is very like one that has appeared elsewhere.

In the chapter on the birds of the upland streams an excellent account is given of the habits of the water-ouzel or dipper; and here the author appears, for once, to have caught Prof. Newton "tripping." In his "Dictionary of Birds" the origin of the name "dipper" is attributed by the Cambridge ornithologist to the writer of the letter-press of Bewick's "British Birds," but Mr. Dixon points

#### NOTES.

THE delegates to the third biennial conference in connection with the International Catalogue of Scientific Literature were entertained at dinner by the Royal Society as we went to press last week. In the course of the evening several interesting speeches were made in proposing and responding to toasts. Prof. Forsyth, in proposing "International Science," referred to the great empire of science, the possessions and achievements of which are intended for the welfare of all men. Prof. Darboux responded for France, Prof. Klein for Germany, and Prof. Weiss for Austria. The toast of "The Delegates to the Conference" was proposed by Sir John Gorst and responded to by Prof. Ciamician (Italy), Dr. Graf (Switzerland), and Dr. Brunchorst (Norway). Sir Michael Foster proposed the toast of "The Guests," which was responded to by Lord Strathcona; and the

health of "The President" was proposed by Dr. Schwalbe and acknowledged by Lord Lister. We have not yet received from the Royal Society the *procès verbal* of the meetings of the delegates, but it is understood that the support promised will warrant a commencement of the Catalogue at the time fixed.

THE third biennial Huxley lecture at the Charing Cross Hospital Medical School will be delivered by Lord Lister on Tuesday, October 2. The two former lecturers, in 1896 and 1898, were Sir Michael Foster and Prof. Virchow.

THE Society of Arts has awarded its Albert medal for the present year to Mr. Henry Wilde, F.R.S., "for the discovery and practical demonstration of the indefinite increase of the magnetic and electric forces from quantities indefinitely small." This principle is the one on which the invention of the dynamo machine is based, and is utilised in the construction of all modern dynamos.

AT the annual general meeting of the Royal Statistical Society, held on Tuesday, Lord Avebury was elected president for the ensuing session. It was announced that the subject of the essays for the Howard medal, which will be awarded in 1901, with 20*l.* as heretofore, is "The History and Statistics of Tropical Diseases, with especial reference to the Bubonic Plague." The essays should be sent in on or before June 19, 1901.

THE annual meeting of the Marine Biological Association will be held at the Royal Society on Wednesday next, June 27.

WE learn with regret that Mr. W. Percy Sladen, for years an honorary secretary of the Linnean Society, died at Florence on June 11.

THE death is announced of M. Boutan, one of the founders of the French Physical Society, and the author of an excellent "Traité de Physique" as well as other works.

PROF. EDMUND PERRIER has been appointed to succeed the late Prof. Milne-Edwards as director of the Paris Natural History Museum.

THE autumn meeting of the Iron and Steel Institute will be held at Paris under the auspices of the Société d'Encouragement pour l'Industrie Nationale, on Tuesday and Wednesday, September 18 and 19.

THE summer meeting of the Institution of Mechanical Engineers will be held in London on June 27 and 28. The programme includes an adjourned discussion on road locomotion (a short supplementary paper dealing with the recent trials will be submitted by Prof. H. S. Hele-Shaw, F.R.S.); recent locomotive practice in France, by M. Edouard Sauvage; poly-phase electric traction, by Prof. C. A. Carus-Wilson; observations on an improved glass revealer, for studying condensation in steam-engine cylinders and rendering the effects visible, by Mr. Bryan Donkin.

AN interesting exhibition of objects illustrating the population, monuments, customs, and native industries of the Chawi and Kabyle tribes of Algeria will be on view in the rooms of the Anthropological Institute, 3 Hanover Square, W., until June 23, from 11 a.m. to 5 p.m. The objects were collected in the course of a recent journey in Algeria by Mr. D. MacIver, student of Egyptology at Worcester College, Oxford, and Mr. Anthony Wilkin, of King's College, Cambridge.

THE Advisory Committee appointed by the Board of Trade in connection with the business of the Intelligence Branch of the Commercial, Labour, and Statistical Departments of that office met on Thursday last, Sir Courtenay Boyle being in the chair. There were present, among others, Lord Avebury, Sir Frederick Abel, F.R.S., Prof. Wyndham R. Dunstan, F.R.S., and Mr. C. A. Harris C.M.G.

THE grant of 1000*l.* in aid of the work of the Marine Biological Association; the site of the National Physical Laboratory at Kew; and the grant to the British School at Athens, were brought before the House of Commons on Friday last, upon the vote to complete the sum of 50,724*l.* for scientific investigation. It was urged by Mr. Gibson Bowles that the grant to the Marine Biological Association should be largely increased; and by Lord Balcarras that the vote of 7000*l.* for building and equipping the National Physical Laboratory should not bind the Treasury to adhere to the site which has been proposed. Mr. Hanbury said it should be borne in mind that the grant of 1000*l.* to the Marine Biological Association was not the only grant made in connection with the fisheries of the United Kingdom. A grant was given to the Fishery Board of Scotland for the purpose of scientific investigation, and similar assistance was given to the Irish fisheries. Under present conditions there did not seem to be any urgent necessity to increase the grant. The Treasury had very little voice in the matter of the Physical Laboratory; it had acted on the recommendation of a committee of the Royal Society. It was absolutely necessary to find a site near Kew Observatory, and after looking at every possible site the committee strongly reported that no other site would answer the purpose so well as that which adjoined Kew Gardens. He agreed that nothing ought to be done which would interfere with the amenities of Kew Gardens, and this point had been considered in the selection of the site. The two buildings, one for the machinery and the other for carrying on the more delicate scientific operations, were to be placed in positions which would not mar the views from the gardens or injure their amenities. The voting of the 7000*l.* would in no way prejudice the consideration of the case against the proposed site.

REFERRING more particularly to the British School at Athens, Mr. Balfour said that the only ground for the alarm expressed was that the original grant was for five years, and that this term was drawing to a close. The question of Governmental subvention of scientific investigation was a very important subject, and there was no doubt that this country had, from a traditional policy, lagged greatly behind other nations in this respect. It never occurred to us to do what the Germans, the French, or the Americans did in making certain grants for investigations; and whether we were right or wrong he did not undertake to say. His own personal inclination was rather in the direction of Governmental aid in cases where they could not expect private aid to come forward; but at the same time he confessed that he often thought how strange it was in a very rich country like ours there were not found some people who, in a difficulty to find other and more profitable investments, did not attempt to earn glory for themselves by carrying on those investigations with the money that was required. He could only say that certainly the grant would not be discontinued without a generous consideration of the facts and interests involved.

A MEETING of the Röntgen Society was held on Thursday, June 7, at St. Bartholomew's Hospital, by the invitation of Dr. Lewis Jones. A large American Holtz machine has recently been presented to the hospital, and it was chiefly to allow the members to have an opportunity of seeing this machine at work in connection with X-ray tubes that Dr. Jones invited the Society to meet at the hospital. Large Holtz machines, though used considerably in America, are rarely seen in this country, where the Wimshurst pattern is more commonly employed. A dark room has been fitted up in the electrical department specially for X-ray work. The wires for bringing the current to the tubes are passed through a partition to the machine, which is on the other side. The observer and the patient are thus in no way disturbed by the movements of the



machine, or of the motor or other appliances connected with the working of the same. The light given by the tubes was perfectly steady, which is one of the advantages usually claimed for the influence machine over the coil, although this has been somewhat diminished since the advent of the Wehnelt and Caldwell electrolytic breaks.

MR. J. WIMSHURST, F.R.S., also read a short paper on his work in connection with the design and perfecting of the several forms of his influence machine, describing, among others, the large machine made for and presented to the Science and Art Department, with plates 84 inches in diameter; and another, with twenty-four plates 36 inches in diameter, shown at the Earl's Court Exhibition, and which is now, we believe, in the possession of Dr. J. Macintyre, of Glasgow.—Dr. Rémy, of Paris, showed a new localising apparatus. This consists of a vertical support moving in a socket fixed to the table. The tube is supported by a cross piece at the lower end, under the table, while the fluorescent screen is attached to the upper end, together with two pointers representing the paths of the rays, and held in supports moving in slots or grooves. Two observations are made and the pointers adjusted, after which the apparatus is turned round away from the table, and the pointers lowered until their points meet, thus indicating the depth of the hidden object below the surface. A bullet hidden in a loaf of bread was found in a minute or so by Dr. Rémy.

THE *Scientific American* contains an account of Count von Zeppelin's projected navigable balloon now under construction on Lake Constance. The balloon is to be 416 feet in length and 38 feet in diameter, divided into seventeen compartments, and supported on an aluminium framework. It is to carry two cars and motors, and to be propelled by screws placed in pairs at the side of the balloon and geared to the driving-shaft by two diagonal shafts. In the preliminary experiments for testing the efficiency of the motors, a launch was driven on the lake at from 6.8 to 9.2 miles an hour by aerial propellers. The fuel is benzene, and it is calculated that the balloon will carry sufficient fuel to perform a journey of over 179 miles.

THE cutting of the *sudd* on the Upper Nile and the consequent release of large volumes of stagnant water has, we learn from the *Times*, had an unanticipated influence on the condition of the river at Assuan. From reports received by Sir Benjamin Baker from the engineering staff it would appear that the absence of free oxygen in the water has caused wholesale destruction of the fish. Within a hundred yards of the resident engineer's office at least a million dead fish, ranging in size from minnows to six feet in length, are to be found. This result is consistent with London experience when it was usual to pour crude sewage into the stream. The filtered water, though clear and odourless, was drunk with impunity, but, having no free oxygen, eels plunged into it would struggle violently and finally die of suffocation, as has apparently been the case with the fish in the Nile in the special circumstances resulting from the long-deferred cutting of the *sudd* this year.

SOME notes on New Zealand volcanoes are contributed to the latest volume (1899) of *Transactions and Proceedings* of the New Zealand Institute, by Dr. B. Friedländer. A description of an eruption of Te Mari witnessed by him is of interest. The eruption began with an explosion, and masses of ash-bearing steam were ejected. There were at least four different light-phenomena:—(1) the reflection of incandescent matter upon the dark clouds; (2) a large number of red-hot boulders, which were shot high up and fell down in parabolic curves; (3) light-

ning, due to electricity produced by friction. The lightning appeared in masses of ash-bearing steam; and the ashes were coarse, the single grains being about the size of a pin's head. (4) Blue flames, and probably reddish flames. Some red flames were apparently distinct from the light due to illumination of steam, and the blue flames must have been real. Dr. Friedländer suggests, to account for the flames, that during the explosion there escaped combustible gases which at a certain height above the crater met the oxygen necessary for taking fire. He considers that vaporised sulphur would explain his observations better than hydrogen, the flames of which are less brilliant and less distinctly blue. Another paper of interest to students of vulcanology, in the volume referred to, is a detailed description of the volcanoes of the Pacific, by Mr. Coleman Phillips.

AN official report by Captain R. H. Elliot, upon his researches into the nature and action of snake-venom, is referred to in the *Madras Mail*. Captain Elliott confirms the fact that the mongoose is not immune in the fullest sense of the expression, seeing that it may succumb to a snake-bite, if sufficiently severe, like any other animal. His researches go to show, however, that the mongoose does enjoy a partial and comparative immunity from snake-poison—that is to say, a mongoose takes from ten to twenty-five times as much cobra venom to kill it as a rabbit does, and five to twelve times as much as a dog. M. Calmette gives a somewhat lower estimate than this; but he made only a few experiments, and it is noteworthy that the mongooses that he experimented with were obtained from Guadeloupe, where venomous snakes are unknown. The mongoose was introduced into Guadeloupe (and Barbadoes) some twenty-five years ago with a view to the destruction of rats. Captain Elliott thereupon remarks:—"We are thus led to the interesting conclusion that the introduction of the mongoose into a country in which venomous snakes are unknown has resulted, in so short a period as a quarter of a century, in a very appreciable reduction of the animal's resistance to snake-venom. This fact points strongly to the farther conclusion that the immunity is an acquired one, and inasmuch as the acquired characteristic has been so rapidly and easily diminished, it would appear likely that it must be maintained from generation to generation. Be it remembered that a quarter of a century probably means about fifty generations."

THE growing necessity of obtaining greater speed on railways has of late been freely discussed, and different designs have been put forward favouring very much the idea of a single-rail system resting on supports and its train suspended below. Hitherto all railways of this nature have been propelled by steam or electric motors, but *Fielden's Magazine* (June) describes and illustrates a still later application of this suspended car system, patented by Mr. H. S. Halford under the name of the Halford gradient railway. The remarkable feature about his system is the fact that no locomotive or electric motors are carried, as the train derives its motion by gravitation imparted by raising, as long as this is required, to a slight incline, the section of line upon which the train is running. The track of this railway, which is supported, is divided into sections, the extremities of which can be raised or lowered by hydraulic (or other) power, the operation being performed either automatically by the carriage in its transit or by the driver at will. It is stated that the cars ride smoothly going from one section to another, and also the change of incline is so small and gradual that the lifting of the track is almost unperceived. The Halford gradient railway has yet to see a more practical test, but the following advantages claimed make the device feasible in many ways:—(1) In all other systems, the greater the load the less the speed; in this, the greater the load

the greater the speed. (2) There is no need to stop for coal or water. (3) Its natural tendency must be to increase in speed. A photograph of a working model and diagrams illustrate the article.

CONSIDERING the advances that have been made in the rate of travelling during the present century, it would be unsafe to say that a speed of 120 miles an hour is not attainable. The evidence that was produced before a Committee of the House of Commons, in a Bill recently brought forward, was not, however, sufficient to satisfy the Committee that such a rate of speed can be attained with safety to the passengers. The scheme of the inventor, Mr. Behr, was for an electric railway to run between Liverpool and Manchester, and to perform the journey of 35 miles, including stoppages, in  $17\frac{1}{2}$  minutes, which would mean a speed of more than double that now attained by the best express trains. The carriages were to be suspended on a single rail resting on A-shaped iron tressels, with two side rails to keep the carriages in place. The idea of carriages being suspended from rails is not new, an electric railway on this principle, 8 miles long, having for some time been in use between Barmen and Elberfeld. The trolley rails there are double, and the speed attained is only  $18\frac{1}{2}$  miles an hour. In the Lartigue system, which has also been in use for some years, the carriages are suspended from a single rail, but no high speed is attempted. An experimental railway was constructed at Brussels on the Behr system, when a speed of 80 miles an hour was said to be attained. The sensation produced by the sudden pulling up of an ordinary express train is sufficiently uncomfortable, to say the least, to create considerable doubt as to the safety of stopping a train within any reasonable distance travelling at double this rate. Anyway, the Committee, in the interest of the public, declined to give their sanction to the scheme as presented to them; and while admitting that the mono-rail system when properly matured might make an important development in railway traffic, yet as regards the method of applying the brake-power to trains running at such high speeds, they were not satisfied that the safety of the public was sufficiently provided for.

THE action which the vestry of the Parish of Hammersmith has taken to make known the nature of consumption, and the measures which should be adopted to prevent its spread, is altogether praiseworthy, and other public authorities should emulate it. At the request of the vestry, the medical officer of health, Mr. N. C. Collier, has prepared a report upon the causes and prevention of consumption, and it has been distributed in the form of a leaflet. It is pointed out that "there is now no doubt that consumption is caused by a minute living organism, the bacillus of tubercle, and that the presence in the body of the tubercle bacillus is most rarely inherited, but becomes introduced from without. What is inherited is the non-resistible condition of the vitality of certain cells in the body which are unable to destroy the tubercle bacillus, when it has become accidentally introduced into the system. To prevent consumption it is necessary, firstly, to avoid all those means by which the tubercle bacillus may be introduced into the body; and, secondly, to avoid all those causes which enfeeble the vitality of the cells of the body, and so render them unable to destroy the tubercle bacillus should it become introduced." The hygienic principles to be borne in mind in order to prevent the spread of the disease are briefly summarised, and the information given cannot be too widely known to the public.

THE recent report of progress of the observatory at Colába (Bombay) shows the large amount of work accomplished during the year ending March 1900. In addition to the usual magnetic and meteorological instruments, one of Prof. Milne's horizontal pendulums has been in action for nearly two years. During the year covered by the report, twenty-seven earthquakes were

registered, besides 1398 small and local movements. A second horizontal pendulum, designed and made locally, was erected last March. It is similar in principle to the other, but much more sensitive. The record is made mechanically by means of an ordinary crow quill and glycerine ink, writing on paper driven at the rate of five inches an hour, excellent open diagrams being thus obtained.

THE Deutsche Seewarte has recently issued its twenty-second volume of *Aus dem Archiv* for the year 1899, containing valuable discussions relating to the motions of air and sea. Among the most popular subjects we may mention a paper, by Dr. van Bebber, on a scientific basis of weather prediction for several days in advance. The same subject has been treated of by the author, in a preliminary way, in periodical publications, and has already been noticed in our columns. The question is one of great importance, and we therefore refer our readers to the present more elaborate discussion. An examination of the weather conditions of twenty years, as shown by the daily weather charts of the Deutsche Seewarte, has led the author to distinguish five principal types, under one of which the actual conditions may be classed, with a fair degree of probability that the behaviour of the weather (on the Continent) will conform in its general features to that of the type in question. The types all refer to the more persistent areas of high barometric pressure, in contradistinction to the more mobile areas of lower barometric pressure. The paper is accompanied by sixteen charts and diagrams printed in the text, and will repay careful study by those interested in weather prediction.

WE have received a double number of the *Journal* of the Scottish Meteorological Society, completing vol. xi. (3rd Series) of this useful publication. It contains the usual valuable meteorological returns from the Scottish lighthouses, and from a large number of stations belonging to the Society. These observations (which refer to the years 1897 and 1898) have been carefully examined; and monthly means have been calculated and utilised in the preparation of the annual reports on the meteorology of Scotland. In addition to this routine work, the number contains several special discussions, e.g. the "Annual Rainfall of Scotland from 1800 to 1898." This is a comprehensive and laborious compilation, by Dr. Buchan, and will be of the greatest utility in any inquiry bearing upon the rainfall of this part of the United Kingdom. The tables are divided into two parts, showing (1) the annual amounts, and (2) the average rainfall for the whole period, the heaviest and least yearly amount, the height of the station, and other particulars. Among the other papers may be mentioned "Barometric and Thermometric Gradients, 1704-1898," showing the differences in the mean monthly and annual values of these elements at London and Edinburgh, by Mr. R. C. Mossman. We are glad to see that the important work of the Ben Nevis Observatories will be completed in the way desired by the directors, thanks to the magnificent donations of two of the members of the Society.

THE Wisconsin Geological Survey sends us the third number of an "Economic Series," a "Preliminary Report on the Copper-bearing Rocks of Douglas County, Wisconsin," by Dr. Ulysses S. Grant. The copper occurs mainly as the native metal, and most commonly in the upper amygdaloidal parts of the old lavas belonging to the Lower Keweenawan (pre-Cambrian) formation. It occurs also in small particles scattered through both igneous and stratified rocks, in minute seams and in veins. It was deposited in its present position by circulating waters. At times, at the surface the native copper is not discernible, and its presence may then be detected by the green and blue alteration products or stains, malachite or azurite. Areas where the rock is highly charged with epidote are of a yellow or yellowish-green colour, and it is

recommended that these be searched for particularly, as in them copper is likely to occur. The rocks of Douglas county are the same in nature, in origin and in age, as the copper-bearing rocks of Keweenaw Point, Lake Superior; but at present it has not been determined in Douglas county that any deposit of copper of sufficient richness is extensive enough to be of economic value. Some of the recent explorations are, however, very encouraging.

THE *Quarterly Journal* of the Geological Society for May is a bulky number, which contains the address of the ex-president, Mr. Whitaker, and fourteen papers dealing with a variety of subjects. Perhaps the most important of these are contributed by women, who, by the by, are not at present eligible to become Fellows of the Society. There can be no doubt, however, that the essay by Miss Gertrude Elles on the zonal classification of the Wenlock shales of the Welsh borderland, and that by Miss Ethel Wood on the Lower Ludlow formation and its graptolite-fauna, make very great advances on our previous knowledge. The papers bear evidence of long-continued and critical research on the Silurian strata and on the difficult subject of the zoological characters of the graptolites which characterise successive stages in the rocks.

THE volume of "Geological Literature," which since 1895 has been separately published by the Geological Society of London, reflects great credit on the compiler, Mr. W. Rupert Jones, and on the editor, Mr. Belinfante. In this work the titles are given of the books and of all the geological papers contained in periodicals which have been added to the Society's library during the year 1899. This list occupies over a hundred pages, while the subject-index brings the total to 176 pages. As a work of reference it is indispensable to all geologists.

THERE is now in the press, and will shortly be published by Messrs. Young, Liverpool, and Messrs. Porter, London, the report of the conjoint expedition to Sokotra and Abd-el-Kuri, conducted in 1898-99 by the British Museum (represented by Mr. Ogilvie-Grant, of the Zoological Department) and the Liverpool Museums (represented by the director of museums to the Corporation, Dr. H. O. Forbes). The expense of its publication is borne by the Museums Committee of the Liverpool City Council, and the volume is edited by Dr. Forbes. It will be illustrated by between twenty-five and thirty plates, chiefly coloured, depicting the zoological and botanical discoveries of the expedition, the ethnography of the islands, &c. The introductory chapters by the editor give an account, fully illustrated by blocks, of the journey, of the geography of the islands and of their inhabitants. The scientific chapters are contributed by Lord Walsingham, F.R.S., Prof. I. B. Balfour, F.R.S., Mr. Boulenger, F.R.S., Dr. Forbes, Mr. Ogilvie-Grant, Mr. A. E. Smith, Colonel Godwin-Austen, F.R.S., Mr. De Winton, and other well-known naturalists.

THE last number of the *Zeitschrift für wissenschaftliche Zoologie* contains an elaborate paper, by Dr. E. Zander, on the male reproductive organs of the Hymenoptera. It is illustrated by a remarkably well-executed coloured plate.

A CORRESPONDENT of *Nature Notes* asks for some good reason why a lover of animals should not wear the stuffed head of a bird or other creature as an ornament. The query appears to us a pertinent one.

WE have received the Report of the South African Museum for 1899, in which the Trustees express themselves generally well satisfied with the progress of the institution. They record an addition to the edifice of a large block of new building to receive the art collections.

IN No. 3 of *Marine Investigations in S. Africa*, Mr. G. A. Boulenger describes an example of the rare unicorn-fish (*Lophotes cepedianus*) from the Cape of Good Hope, where it has not hitherto been definitely known to exist. The specimen was considerably over a yard in length. The unicorn-fish, which is an ally of the ribbon-fishes, takes its name from the peculiar filamentous process arising from the front of the elevated head.

THE Annual Report of the Field Columbian Museum, containing an excellent portrait of its founder, Marshall Field, is likewise to hand. The museum appears to be making extremely rapid progress, its ethnological series having been very largely increased by the acquisition of the rich collection acquired by the Stanley McCormick Expedition among the Hopi Indians. An especial feature of the report is the introduction of a number of photographs of recent acquisitions. Among these, we may call attention to the portrait of a Hopi bride, and also to a plate of a group of the extraordinary gigantic spiral fossils known as "devil's corkscrew," or *Daemonelix*, which have lately excited so much interest.

THE Imperial Department of Agriculture for the West Indies has just issued a small pamphlet on the best means of destroying that troublesome insect, the "moth-borer" (*Diatraea saccharalis*), which inflicts so much damage, while in the caterpillar stage, on sugar-cane. It appears that a considerable number of the eggs of the moth-borer (which are laid in patches on the leaves of the sugar-cane) are attacked by parasites which prevent the development of the caterpillars, and in due course come forth as flies. These parasite-infested eggs are readily distinguished from healthy eggs by being black, instead of yellow or orange. It is recommended to destroy all the yellow and orange eggs that can be collected, but to leave the black ones, in order that they may breed flies to destroy other clutches of eggs. If this remedy were adopted as soon as the young cane commences to show, and continued as long as it is sufficiently small, the loss of the best shoots would be avoided. If, however, the caterpillars are allowed to hatch out and bury themselves in the cane, there is nothing for it but to cut out the "dead hearts," and this to a considerable depth. When cut out, they must forthwith be destroyed, or the caterpillar will either complete its development in them, or crawl out to other canes.

*Bulletin* No. 2 of the West of Scotland Agricultural College is a report by Prof. R. Patrick Wright on experiments on the manuring of rye-grass and clover-hay in 1899.

THE following are the most recent official botanical publications which have reached us from the United States:—The germination of seeds as affected by certain chemical fertilisers, by Mr. G. H. Hicks (U.S. Department of Agriculture, Division of Botany, *Bulletin* No. 24); Bread, and the principles of bread-making, by Helen W. Atwater (U.S. Department of Agriculture, *Farmer's Bulletin*, No. 112); Co-operative experiments with grasses and forage-plants, by Dr. P. Beveridge Kennedy (U.S. Department of Agriculture, Division of Agrostology, *Bulletin* No. 22).

UNDER the title of "Annuaire des Mathématiciens," Messrs. Georges Caré and C. Naud propose to publish a directory containing the names, addresses and academic rank of those interested in the study of mathematics.

MUCH information is given in a clear and concise form in Mr. A. A. C. Swinton's little book on "The Elementary Principles of Electric Lighting" (Crosby Lockwood), the fourth edition of which has just been published. The book only runs into sixty-four pages, but everything in it is to the point; and electrical artisans, as well as readers unfamiliar with



electrical phenomena and effects, will find its pages perfectly intelligible.

THE first part of Dr. Carl Chun's narrative of the cruise of the *Valdivia* and the scientific work accomplished, which has been published by the firm of Gustav Fischer, Jena, shows that the complete work, "Aus den Tiefen des Weltmeeres," will be a most interesting account of a successful expedition. The descriptive matter is untechnical in style, and liberally illustrated with excellent half-tone blocks and plates reproduced from photographs. The complete work will contain six chromolithographs, eight heliogravures, thirty-two full-page plates, and about 180 illustrations in the text. There will be twelve parts in all, two of which will be published every month, and the whole by November next. The work will be a *Challenger* narrative on a small scale, full of interest to all students of natural history and of physical geography in the most comprehensive sense of the term. We propose to review it in detail when all the parts have been received.

PROF. E. B. WILSON'S work on "The Cell in Development and Inheritance" (The Macmillan Company) contains a masterly treatment of the facts of cell-structure and division, and is favourably known to many biologists. It originally appeared in 1896, and has already been reviewed in *NATURE* (vol. lv. p. 530). Since then the aspect of many important questions with which it deals has been greatly changed, more particularly in case of those focused in the centrosome, and involving the phenomena of cell-division and fertilisation. This has necessitated a complete revision of the work, and there is scarcely a page of the second edition, which has just been published, that has not undergone alteration. More than a hundred pages of new matter have also been added. The most important results of modern cell-research, especially on the zoological side, are brought together in the volume, which will continue to be used as a convenient and clear synopsis of a vast amount of knowledge to which additions are constantly being made.

THE additions to the Zoological Society's Gardens during the past week include a Grivet Monkey (*Cercopithecus griseo-viridis*) from North-east Africa, presented by Mr. H. G. F. Stallard; a Campbell's Monkey (*Cercopithecus campbelli*) from West Africa, presented by Miss E. B. Hall; two Palm Squirrels (*Sciurus palmarum*) from India, presented by Mr. W. B. Bingham; two Common Squirrels (*Sciurus vulgaris*), British, presented respectively by Dr. J. L. Williams and Mr. G. S. Johnson; an Egyptian Jerboa (*Dipus aegyptius*) from North Africa, presented by Lady Preston; an Angola Seed-eater (*Serinus angolensis*) from Angola, presented by Miss Long; a Yellow-billed Sheathbill (*Chionis alba*), captured at sea, presented by Captain Bate; ten African Walking Fish (*Periophthalmus kœlreuteri*) from West Africa, presented by Dr. H. O. Forbes; a Hocheur Monkey (*Cercopithecus nictitans*), a Moustache Monkey (*Cercopithecus cephus*), a Malbrouck Monkey (*Cercopithecus cynosurus*), an Angolan Vulture (*Gypshierax angolensis*) from West Africa, a Chacma Baboon (*Cynocephalus torquatus*, ♂) from South Africa, a Negro Tamarin (*Midas ursulus*) from Guiana, two Wandering Tree Ducks (*Dendrocygna arcuata*) from the East Indies, four Anderson's Tree Frogs (*Hyla andersoni*), four Changeable Tree Frogs (*Hyla versicolor*) from North America, deposited; an Orinoco Goose (*Chenalopex jubatus*), a Blue-fronted Amazon (*Chrysotis aestiva*, var.) from South America, a Little Guan (*Ortalia motmot*) from Guiana, a De Filippi's Meadow Starling (*Sturnella defilippi*) from Argentina, purchased; two Collared Fruit Bats (*Cynonycteris collaris*) from South Africa, received in exchange; three White Ibises (*Eudocimus albus*), six Glossy Ibises (*Plegadis falcinellus*), bred in the Gardens.

#### OUR ASTRONOMICAL COLUMN.

FRENCH OBSERVATIONS OF THE TOTAL ECLIPSE OF THE SUN.—The *Comptes rendus* of the Paris Academy of Sciences for June 5 (vol. cxxx. pp. 1495-1529) contains the preliminary reports of several of the French astronomers who made observations of the recent total eclipse.

M. le Comte de la Baume-Pluvinel, observing at Elche, near the east coast of Spain, successfully carried out a very extensive programme. Nine photographs of the corona were obtained with objectives of 1.50 metres focal length; on these he says the coronal structure is almost identical with that he observed in 1889 at Salut. The planet Mercury is shown on all these plates, and will be useful for their accurate orientation. Three plates were obtained with a lens of 2.70 metres focal length, in conjunction with a cœlost. For spectroscopic work three instruments were employed. A single prism spectrograph, with the slit in the line of the solar equator, showed the continuous spectrum of the corona extending to 12' from the limb. Thirty-five bright lines were recorded, more intense on one side than the other. A second spectrograph had two objective prisms of spar and quartz; plates taken with this showed numerous chromospheric arcs, and a strong one due to the corona, this latter having no definite outer boundary. One interesting plate taken some seconds after totality still shows chromospheric arcs, and will furnish measures of the thickness of the chromospheric layers from the actual limb of the sun. An attempt to observe with a powerful six-prism spectroscope for special examination of the principal coronal radiation was rendered difficult by the feeble intensity of the image.

M. Ch. Trépied, director of the Algiers Observatory, also communicates a number of successful results. In addition to many accurate visual observations, twenty-eight photographs of the partial phases were made; six of the corona during totality, using an objective of 0.16 metre aperture and 1.03 metre focal length; the coronal extensions are recorded to 3.5 lunar diameters from the limb. Spectroscopic photographs were obtained with a Thollon prism spectrograph, an attempt being made to record the spectrum of the corona at diametrically opposite regions.

M. G. Meslin and party at Elche obtained eight photographs of the corona with a Henry lens of 16cm. aperture and 1 metre focus, and wide angle photographs of the region round the eclipsed sun for recording new objects. A photograph of the spectrum of the corona was obtained with a concave Rowland grating of 3 metres radius of curvature, used with a heliostat. The second order was photographed on plates 13 × 18cm., the spectrum extending from F to M; the images of the chromospheric radiations being portions of circles 16mm. in diameter.

THE TOTAL ECLIPSE OBSERVED AT SEA.—In an interesting letter written to the *Gibraltar Chronicle* of May 30, Colonel E. E. Markwick describes the appearance of the recent total eclipse as he and other fortunate passengers observed it from the Orient Steamship Company's R.M.S. *Austral*. The Company had considerably arranged that the vessel should be so navigated as to be near the central line of totality at the time of the eclipse, and, thanks to the skill of those in charge, this was accomplished with perfect success.

The position of the ship during totality was about Long. W., 9° 27', Lat. N., 41° 3', this being about 50 miles west of Oporto; the duration of the eclipse was about 1m. 31s. The Orient Company had provided an ample supply of glass plates, which, when smoked, permitted the passengers to view the progress of the partial phases, opera glasses being substituted during totality. During the eclipse the sky near the horizon was a lurid yellow, the clouds visible being reddish; the sea looked dark and sombre against the bright yellow of the sky. Close to the sun, however, the sky was quite blue; the darkness during totality was just sufficient to interfere with distinct vision.

The success of this enterprising project will probably induce many would-be observers in the future to adopt this exceedingly convenient and comfortable style of eclipse expedition; the departure from regular routine, though slight in itself, furnishing opportunity for really important scientific operations without disorganising any of the usual arrangements of the observers.

NEW VARIABLE STAR IN CEPHEUS.—Prof. W. Ceraski, of Moscow, announces in the *Astronomische Nachrichten* (No. 3644) that Mdme. Ceraski has found a new variable on examin-